

Polymers and Polymerization

USSR

UDC 541.15

KUCHER, A. M., PENIONZHKEVICH, YU. E., and FLEROV, N. G.

"Some Characteristics of the Production and Yield of F^{18} From Fluoroplast Under γ - and Neutron Irradiation."

Moscow, Khimiya, Vysokikh Energiy, Vol 7, No 4, Jul-Aug 73, pp 362-366

Abstract: The formation and yield of fluorine and its compounds from fluoroplast has been investigated as a function of various parameters (temperature, surrounding medium, thickness of the fluoroplast samples, etc) under the influence of neutron and γ -quanta streams (10^{10} particles per $cm^2 \cdot sec$). Free fluorine was determined by means of the activation analysis using the radioactive isotope fluorine¹⁸. The results obtained make it possible to use extrapolative techniques in determining the yield of various fluorine containing products from fluoroplast and to reach some conclusions on the mechanism of the reactions occurring in the polymers under nuclear irradiation.

1/2 025

UNCLASSIFIED

PROCESSING DATE--18SEP70

TITLE--EFFECTIVE CROSS SECTIONS OF THE FORMATION OF EXCITED MERCURY IONS
DURING THE IONIZATION OF MERCURY ATOMS BY ELECTRON IMPACT -U-

AUTHOR--(03)-VARSHAVSKIY, S.P., MITYUREVA, A.A., PENKIN, N.P.

COUNTRY OF INFO--USSR

SOURCE--OPT. SPEKTROSK. 1970, 29(1) 26-30

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--MERCURY, ELECTRON BOMBARDMENT, IONIZATION CROSS SECTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REF/FRAME--1980/1326

STEP NO--118/0051/70/023/001/002/003

CIRC ACCESSION NO--AP0049487

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0049487

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTIVE INTERACTION CROSS SECTION OF THE FORMATION OF EXCITED HG IONS BY THE IMPACT OF ELECTRONS ON HG ATOMS HAVE BEEN CALCD. EXCITATION FUNCTIONS AND ABS. VALUES OF EFFECTIVE CROSS SECTION OF STATES S, P, D CORRESPONDING TO NORMAL TERMS OF HG II, AND ALSO TO THE 4 LOWER STATES OF THE BUTLER SYSTEMS HAVE THE SAME ORDER OF MAGNITUDE (10 PRIME NEGATIVE18 MINUS 10 PRIME NEGATIVE19 CM PRIME2). EXCITATION CROSS SECTION OF THE RESONANCE STATE 6 PRIME2 P SUBONE

USSR

UDC 629.7.036.3.002.4

PEN'KOV, A. M., POGREVNAYAK, A. D., KUFAYEV, V. N., SINAYSKIY, V. N.

"Use of Complex Method of Estimating Reliability to Study Heat-Resistant Materials for Gas Turbine Engine Parts"

Sb. Nauch. Tr. Kiev. In-t Insh. Grazhd. Avnatsii, [Collected Scientific Works of Kiev Civil Aviation Engineering Institute], 1971, No 4, pp 69-73. (Translated from Referativnyy Zhurnal Aviatsionnye i Raketnyye Dvigateli, No 1, 1972, Abstract No 1.34.77 from the resume).

Translation: Fatigue tests were performed in order to estimate the durability of alloy EI617 under variable temperature conditions. The tests reproduced a temperature program imitating the temperature changes of blades in operation. The test results are presented as a fatigue curve. The points on the curve express the mean durabilities from the results of testing of 8 to 10 specimens at each level. To evaluate the behavior of the material under near actual conditions, the variable components of the power and temperature programs were reproduced. As before, the stresses in the program were decreased in stages from 39 to 31.5 kg/mm², then increased to 39.5 kg/mm². The damage to the alloy

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USSR

PEN'KOV, A. M., et al., Sb. Nauch. Tr. Kiev. In-t Insh. Grazhd. Avnatsii, 1971, No 4, pp 69-73

was evaluated on the basis of the values of the durability criterion with combined loading a_k . Testing of a series of specimens indicated the value of $a_k=0.70$, indicating intensive damage to EI617 alloy under the combined influence of variable temperatures and stresses. The application of the static component $\sigma_{st}=20\text{kg/mm}^2$ caused a slight increase in the durability criterion with combined reproduction of stresses and temperatures up to $a_k=0.99$. 5 figs.

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USSR

UDC 632.954:635.342

PERKOV, L. A., TYUNYAYEVA, G. N., All Union Scientific Research Institute of
the Agriculture of Central Regions of Non-Chernozem Zone

"Promising Herbicides for White Head Cabbage"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 11, No 10 (120), 1973, pp 50-53

Abstract: Ramrod, atsilide, and mesaronyl are promising agents for the control of weeds on white head cabbage fields. On cultured meadow-swampy soils ramrod and atsilide should be applied in doses of 7-8 kg per hectare, one day prior to seedling planting, while the dose of mesaronyl is 1.5-2 kg/hectare, 10 days after the planting. Mesaronyl is longer acting than ramrod towards various weeds. It has been established that the concurrent use of ramrod, mesaronyl and semerone is possible; the first two should be applied before planting, semerone -- 15 days after. When used in optimal doses, ramrod and mesaronyl did not affect the quality of cabbage.

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USSR

UDC 632.954:635.7 + 635.13

PEN'KOV, L. A., Scientific Agricultural Research Institute of Central Regions' Non-chernozem Zone

"The use of Herbicides in Planting Vegetable Cultures of the Parsley Family (Practical Suggestions)"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 9, No 4 (90), 1971, pp 32-36

Abstract: This is a review of several types of insecticides used on parsley-type vegetables. Mineral oil appears to be least effective since it evaporates rapidly, requiring repeated application; it acts only against some weeds and depresses the growth of the vegetables. Propazine can be used in amounts of 1-2.5 kg/ha, depending on the type of soil. It is slowly deactivated in the soil -- 5-10 months at 12-15°C and its residue can be found in the vegetables. Prometrin is shorter lasting and, except for the carrots, its residual content is not prohibitive. Due to its short-lasting activity repeated applications are required. Linuran resembles prometrin in its action, both

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USSR

PEN'KOV, L. A., Khimiya v Sel'skom Khozyaystve, Vol 9, No 4 (90), 1971, pp 32-36

are very effective herbicides. Solan [3-chloro-4-methylanilide of α -methylvaleric acid], maloran [N-(4-bromo-3-chlorophenyl)-N'-methoxy-N'-methylurea], and tenoran [N'-4(4-chlorophenoxy)-phenyl-N',N'-dimethylurea] are mentioned in the review as possible herbicides but no specific recommendations for them are reported.

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- 83 -

1/2 021
TITLE--A NEW METHOD OF ADMINISTERING CORTICOSTEROIDS IN THE TREATMENT OF
UVEITES -U-
AUTHOR--PENKOV, M.A.
COUNTRY OF INFO--USSR
SOURCE--VESTNIK OFTALMOLOGII, 1970, NR 3, PP 67-68
DATE PUBLISHED--70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--CORTICOSTEROID, HYDROCORTISONE, EYE DISEASE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3003/0118
CIRC ACCESSION NO--AP0129374
STEP NO--UR/0357/70/D00/003/0067/0068
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE—30OCT70

CIRC ACCESSION NO—APO129374

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR PROPOSES A NEW METHOD OF TREATING UVEITES THROUGH IRRIGATION WITH HYDROCORTISONE OF THE CHOROID. EXAMPLES SUPPORTING HIGH EFFICACY OF THIS PROCEDURE ARE CITED. ACCORDING TO THE AUTHOR THE TREATMENT YIELDS PARTICULARLY GOOD RESULTS IN DEALING WITH UVEITES ATTENDED BY AN ABUNDANT EXUDATION INTO THE VITREOUS BODY. THE TECHNIQUE OF ADMINISTERING HYDROCORTISONE INTO THE SUPRAARACHNOID SPACE IS DESCRIBED. FACILITY: KAFEDRA GLAZNYKH BOLEZNEY KHAR'KOVSKOGO MEDITSINSKOGO INSTITUT.

UNCLASSIFIED

Acc. Nr: **AP0049055**

Ref. Code: **U2a357**

PRIMARY SOURCE: Vestnik Oftal'mologii, 1970, Nr 1, pp 88-89

A RARE CASE OF A FOREIGN BODY IN THE ORBIT AND THE HIGHMORE SINUS

M. A. Penkov, YE. Z. Shapoval, A. M. Shkil'

Summary

The authors report a case of combined lesion of the orbit and the Highmore sinus with the presence of a big foreign body (a metal nail with a head measuring 5x0.5 cm). Such wounds are of unfrequent occurrence. The post-operative period proceeded smoothly ending with complete recovery of the patient.

REEL/FRA
19800841

tbl 2

Acc. Nr:

AA0033603

Abstracting Service:
CHEMICAL ABST. 4-70

Ref. Code:
UK0000

740706 Separator/electrolyte carrier for primary wet cells.
Naumenko, V. A.; Toroptseva, T. N.; Pen'kova, L. F.;
Vyselkov, A. A.; Rogova, G. I. Brit. 1,175,955 (1970), 01
Jan 1970, Appl. 23 Jan 1968; 2 pp. The properties of more
rapid H₂O absorption, increased H₂O retention, shorter activa-
tion time and increased elec. cond. can be conferred on aliguine
separators, for use in H₂O-activated primary cells. This is ac-
complished by impregnating or spraying with an aq. solu. contg.
KCl 10, starch 2, and glycerol or urea 5 wt. %, followed by dry-
ing at $\leq 35^\circ$ to $\leq 6\%$ H₂O content. These materials should be
present as KCl 2-8, starch 0.2-0.8, and glycerol or urea 0.2-
3.5 wt. % based on the wt. of dry aliguine.

Norman W. Fletcher

REEL/FRAME

19710168

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172 022
UNCLASSIFIED
TITLE--FIBER FORMING PROPERTIES OF GRAFT COPOLYMERS OF POLYACRYLONITRILE
AND THEIR MIXTURES WITH HOMOPOLYMERS --H--
AUTHOR--(04)--IGRANYAN, T.S., PENKOVA, J.P., LIVSHITS, R.F., RUDOVIN, Z.A.
COUNTRY OF INFO--USSR
SOURCE--KHIM. VOLOKNA 1970, (2) 25-7
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--POLYACRYLONITRILE FIBER, COPOLYMER, CELLULOSE RESIN,
THIOCYANATE, POLYMER RHEOLOGY, BENDING STRENGTH, ABRASION RESISTANCE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1992/1513
STEP NO--UR/0183/70/000/002/0025/0027
CIRC ACCESSION NO--AP0112507
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--02DEC79

CIRC ACCESSION NO--AP0112507

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FIBER FORMING PROPERTIES OF POLYACRYLONITRILE (I)-MA CM CELLULOSE GRAFT COPOLYMERS (II), PREPD. IN THE PRESENCE OF FE PRIME2 POSITIVE AND H SUB2 G SUB2, AND THEIR MIXTS. WITH I WERE COMPARED. FIBERS WERE FORMED BY USE OF PPTG. BATHS OF AQ. NACNS FOR I AND THE I-II MIXTS OR CACL SUB2 BATHS FOR II. RHEOL. PROPERTIES OF POLYMER SOLNS. ARE COMPARED. ALTHOUGH MOST OF THE PHYS. MECH. PROPERTIES OF THE II FIBERS WERE UNSATISFACTORY, FIBERS FROM THE I-II MIXTS. EXCEEDED I FIBERS IN ABRASION RESISTANCE AND BENDING STABILITY. THE MOISTURE ABSORPTIVITY OF THE MODIFIED FIBERS WAS APPROX. THAT OF COTTON.

UNCLASSIFIED

1/2 029 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--RHEOLOGICAL PROPERTIES OF CONCENTRATED SOLUTIONS OF POLYMER
MIXTURES -U-
AUTHOR-(03)-KISELEVA, G.F., PENKOVA, M.P., KONKIN, A.A.
COUNTRY OF INFO--USSR
SOURCE--KHIM. VOLOKNA 1970, (1), 13-16
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--POLYMER RHEOLOGY, CELLULOSE RESIN, ACETATE, POLYACRYLATE
RESIN, COPOLYMER, VISCOMETER, FLUID VISCOSITY, SHEAR
STRESS/(U)AKV2 VISCOMETER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1984/1818

STEP NO--UR/0183/70/000/001/0013/0016

CIRC ACCESSION NO--AP0100392

UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0100392

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RHEOL. PROPERTIES OF CONCD. (12 TO 22PERCENT) SECONDARY CELLULOSE ACETATE (I), POLY(ME ACRYLATE) (II), I PLUS II MECH. MIXT., AND 80:20 I-II GRAFT COPOLYMER SOLNS. IN HCONME SUB2 OR ME SUB2 CO WERE STUDIED AS A FUNCTION OF TEMP., POLYMER CONCN. IN SOLN., AND THE CHEM. COMPN. OF THE SOLVENT AT 20-60DEGREES BY MEANS OF A CAPILLARY VISCOMETER AKV-2 AT A SHEAR STRESS RANGE OF 3 TIMES 10 PRIME4 MINUS 8 TIMES 10 PRIMES DYNE-CM PRIME2. GRAFTING OF FLEXIBLE II MACROMOLS. ON I LED TO INCREASED SOLN. VISCOSITY, WHEREAS THE PRESENCE OF I AS A COMPONENT OF THE MECH. MIXT. HAD A PLASTICIZING EFFECT ON THIS SOLN. AND DECREASED SOLN. VISCOSITY.

UNCLASSIFIED

Acc. Nr:

AP0049840

Abstracting Service:

CHEMICAL ABST. 5 76

Ref. Code:

UR 0368

101360j Graft copolymers of polyacrylonitrile with methyl acrylate studied by an infrared spectroscopic method. Makarevich, N. I.; Pen'kova, M. P.; Konkin, A. A. (USSR). *Zh. Prikl. Spektrosk.* 1970, 12(1), 85-90 (Russ). The grafting of acrylonitrile-2-amino-4-(vinylsulfonyl)aniso copolymer (I) with Me methacrylate (II) was studied by ir spectroscopy. Comparison of the spectra of I and I-II graft copolymers contg. 15 and 30% II indicated that the increase in incorporation of II in the initial stage of grafting occurs mainly via an increase in the no. of grafting centers. Chain growth and branching occur mainly in subsequent stages.

DBJR J m

REEL/FRAME

19801765

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1/2 014 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--CERTAIN CLINICAL FEATURES OF EXTRAMEDULLAR NEOPLASMAS WITH AN
ANTERIOR SPINAL LOCATION -U-
AUTHOR--PENKOVY, I.I. *P*
COUNTRY OF INFO--USSR
SOURCE--ZHURNAL NEVROPATOLOGII I PSIKHIATRII IMENI S. S. KORSAKOVA, 1970,
VOL 70, NR 5, PP 664-669
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TUMOR, MEDICAL EXAMINATION, DIAGNOSTIC MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1996/0231

STEP NO--UR/0246/70/070/005/0664/0669

CIRC ACCESSION NO--AP0117483

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0117483

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR STUDIED 158 CASES WITH TUMORS WHICH HAD AN ANTERIOR SPINAL LOCALIZATION AND GAVE A COMPRESSIONAL SYMPTOMATOLOGY. THE DIFFERENT TYPES OF NEOPLASMAS WITH A LOCALIZATION IN THE ANTERIOR SUBDURAL AND ANTERIOR EPIDURAL SPACE IS BEING GIVEN. IT IS STRESSED THAT A VENTRAL TUMOR DURING GROWTH FIRST OF ALL COMPRESSES THE EXTRAPYRAMIDAL AND THE TURCK TRACT, THEN THE ANTERIOR COMMISSURE OF THE GRAY MATTER, THE ANTERIOR HORNS AND THE CELLULAR FORMATIONS OF THE CLARK COLUMNS. IN SUCH CASES THERE MAY BE A PREVALENT SPACTICITY OVER MOTOR DISTURBANCES. QUITE EARLY AMYOTROPHY (ON THE CERVICAL LEVEL) AND CONTRACTURES OF THE EXTREMITIES APPEAR. SENSORIAL DISORDERS OF A CONDUCTIVE TYPE OCCUR SYMMETRICALLY AND RATHER LATE, AND ARE INDISTINCT. DEEP SENSORY IS RETAINED QUITE LONG. FOR A MORE PRECISE DETERMINATION OF THE LOCALIZATION THE AUTHORS USED THE METHOD OF SPONDILOGRAPHY, MYELOGRAPHY, ETC. FACILITY: OTDEL NEYROKHIRURGII KHAR'KOVSKOGO N-I INSTITUTA NEVROLOGII I PSIKHIATRII.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--RATIONAL METHODS OF EXCISION OF TUMOURS OF THE SPINAL CORD -U-
AUTHOR--PENKOVY, K.I. *P*
COUNTRY OF INFO--USSR
SOURCE--ORTOPEDIYA, TRAVMATOLOGIYA I PROTEZIROVANIYE, 1970, NR 6, PP 52-55
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--SPINAL CORD, TUMOR, SURGERY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3003/0916 STEP NO--UR/9115/70/000/006/0052/0055
CIRC ACCESSION NO--AP0129981
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--13NOV70

2/2 021

CIRC ACCESSION NO--AP0129981

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BASING ON ANALYSIS OF OPERATIVE TREATMENT OF 346 PATIENTS WITH SPINAL CORD TUMOURS, THE AUTHOR GIVES A COMPARATIVE ANALYSIS OF THE FOLLOWING METHOD OF EXCISION OF TUMOURS WITH ANTE AND PARAVETEBRAL GROWTH: (1) METHOD WITH AID OF LAMINECTOMY; (2) ONE STAGE METHOD WITH AID OF LATERAL EXPOSURE OF THE VERTEBRAL CANAL, AND (3) INSTANTANEOUS TWO STAGE METHOD FOR ABLATION OF COMBINED INTRA AND EXTRAVERTEBRAL TUMOURS OF THE SPINAL CORD. THE AUTHOR PROPOSES EXPOSURE OF THE VERTEBRAL CANAL BY MEANS OF LATERAL APPROACH FOR EXCISION OF CENTRAL TUMOURS OF DISCS AND BONY FRAGMENTS. THE ADVANTAGES OF THIS METHOD CONSIST IN CREATION OF DIRECT APPROACH TO THE FOCUS, AND FREEDOM OF SURGICAL MANIPULATIONS FOR ABLATION OF VENTRAL PATHOLOGICAL FOCI UNDER VISUAL CONTROL OUTSIDE THE SPINAL CORD. THE ADVISABILITY IS STRESSED OF INSTANTANEOUS, THROUGH A SINGLE APPROACH FROM THE SIDE OF VERTEBRAL CANAL, METHOD OF ABLATION OF COMBINED INTRA AND EXTRAVERTEBRAL TUMOURS. FACILITY: OTDELA NEYROKHIRURGII KHARKOVSKOGO INSTITUTA NEVROLOGII I PSIKHIATRII.

UNCLASSIFIED

172 011 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--COMMERCIAL FORM OF DIRECT PHTHALOCYANINE DYE -U-
AUTHOR--(02)-KISSIN, B.I., PENKOVSKAYA, N.S. *P*
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 266,978
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--01APR70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--CHEMICAL PATENT, DYE, CHEMICAL SYNTHESIS, AMINE DERIVATIVE,
UREA, ORGANO COPPER COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3004/1801 STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0132067
UNCLASSIFIED

272 011

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AA0132067

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SOLY. OF A COM. FORM OF DIRECT
PHTHALOCYANINE DYE, SUCH AS SULFONATED CU PHTHALOCYANINE, WAS INCREASED
BY MIXING THE DRY DYE WITH UREA.

UNCLASSIFIED

USSR

UDC 541.67 + 547.558.1

PEN'KOVSKIY, V. V., YEGOROV, Yu. P., YURCHENKO, R. I., and MARTYNYUK, A. P.,
Institute of Organic Chemistry, Academy of Sciences Ukrainian SSR

"Electron Transfer From Phosphazoarenes to Acceptor Molecules"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 12, Dec 73, pp 2639-2642

Abstract: In the reactions of phosphazoarenes with tetracyanoethylene and chloranil an electron transfer takes place from the phosphazoarene molecule to the electron accepting one. The stable anion radicals formed have been observed by means of EPR. The concentration of paramagnetic centers in the systems studied increases with growing alkalinity of the phosphazo compounds.

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USSR

UDC 539.194 + 547.558.1

PEN'KOVSKIY, V. V., YEGOROV, Yu. P., and KHOMENKO, D. P., Institute of Organic Chemistry, Acad. Sc. Ukrainian SSR, Kiyev

"Electronic Structure of Cyclotriphosphazenes and Phosphadiazines"

Kiev, Teoreticheskaya i Eksperimental'naya Khimiya, Vol 9, No 4, 1973, pp 445-450

Abstract: The Hofmann's method was used to calculate energy properties and the distribution of electron density of cyclotriphosphazenes and phosphadiazines with various substituents. Phosphonitrile chloride trimer is not an aromatic system; furthermore, no intracyclic P-P bonds have been observed. The phosphodiazine molecules may be viewed as π -systems based on the pyrimidine group with participation of the phosphorus atom; in this compound the σ - and π -electron density is shifted towards the pyrimidine fragment. The effect of substituents on the distribution of electronic density in phosphorus containing cycles has been discussed.

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USSR

UDC 541.67 + 547.558.1

PEN'KOVSKIY, V. V., YEGOROV, YU P., ZHMUROVA, I. N., MARTYNYUK, A. P., and SHURUBURA, A. K., Institute of Organic Chemistry, Acad. Sc. UkrSSR, Kiev

"Distribution of Electronic Density in Anion Radicals Containing Triarylphosphazo Groups"

Kiev, Teoreticheskaya i Eksperimental'naya Khimiya, Vol 9, No 1, Jan-Feb 73, pp 112-116

Abstract: Eight anion radicals of the type $(p-RC_6H_4)_2(p-R'C_6H_4)P:N-C_6H_4NO_2-p$ generated by the electrochemical method in acetonitrile have been studied by means of EPR. In all cases a split was noted on the p^{31} nucleus indicating π -electronic interaction of the P:N group with p-nitrophenyl residue of the anion radical. This effect can be explained only on the basis of $d\pi-p\pi$ interaction. The effects of various electron donor and electron acceptor R and R' on the distribution of spin density has been compared. Qualitative explanation of this effect has been proposed based on the mobility of π -electrons of the imino nitrogen and a direct polar conjugation of the phosphazo group with the nitro group. The values of the splitting constants at the p^{31} nucleus are not correlated with the σ -constants of R and R'.

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USSR

UDC 543.253+541.138.3

PEN'KOVSKIY, V. V., YEGOROV, Yu. P., and SHAPOVAL, G. S., Institute of Organic Chemistry, Acad. Sc. Ukrainian SSR

"Electrochemical Reduction of Phosphazoarenes in Dimethylformamide"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 4, Apr 71, pp 738-742

Abstract: Electrochemical reduction of phosphazo compounds is a stepwise process, characterized by several polarographic waves. The first stage of the electrochemical reduction of triphenylphosphazoarenes in dimethylformamide consists of the formation of anion free radicals. The first functional group to be reduced, when it is present in the molecule, is the nitro group; next the P:N bond is reduced, the reaction occurring irreversibly. When phosphazosulfinyl compounds are studied, the first to be reduced after the nitro group is the S:O bond. The electron effect of the triphenylphosphazo or the sulfinyl groups may be affecting the behavior of the nitro group in ortho- or meta- position with respect to the second substituent during the electrochemical reduction.

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1/2 019 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--ANION RADICALS OF PHOSPHAZO COMPOUNDS. CONDUCTIVITY OF S AND SO
BRIDGE GROUPS -U-
AUTHOR--(05)-PENKOVSKIY, V.V., KUZMINSKIY, B.N., YEGOROV, YU.P., ZHMROVA,
I.N., MARTYNYUK, A.P.
COUNTRY OF INFO--USSR
SOURCE--TOER. EKSP. KHIM. 1970, 6(1), 94-7
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ELECTRON DENSITY, EPR SPECTRUM, ORGANIC PHOSPHORUS COMPOUND,
AZO COMPOUND, SULFUR OXIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3008/0910 STEP NO--UR/0379/70/006/001/0094/0097
CIRC ACCESSION NO--AP0137938
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--04DEC70

Z/2 019

CIRC ACCESSION NO--AP0137938

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ELECTRON D. DISTRIBUTION WAS STUDIED, BY EPR SPECTROSCOPY, IN COMPS. TREATED ELECTROCHEM. TO PRODUCE ANION RADICALS. THUS TREATED WERE I (R PRIME1, R PRIME2, R PRIME3, AND R PRIME4 GIVEN): N:PPH SUB3, H, H, NO SUB2; SN:PPH SUB3, H, H, NO SUB2; SN:PPH SUB3, NO SUB2, H, H; SN:PPH SUB3, NO SUB2 H, NO SUB2; S(O)N:PPH SUB3, H, H, NO SUB2; SN:PPH SUB3, H, NO SUB2, H; S(O)N:PPH SUB3, NO SUB2, H, H; SNH SUB2, H, H, NO SUB2; SNME SUB2, H, H, NO SUB2. THE COND. OF THE SO BRIDGE IS MUCH LOWER THAN THAT OF THE S BRIDGE. FACILITY: INST. ORG. KHIM., KIEV, USSR.

UNCLASSIFIED

USSR

UDC: 621.314.632.001.6

PENOVICH, Ye. I., Engineer

"High-Voltage Semiconductor Rectifiers"

Moscow, Energetik, No. 6, 1971, pp 33-35

Abstract: A description is given of a 175-kV semiconductor rectifier in full-wave circuits using D1007 and D226B types of diode. The device was developed in 1968 at the TsVL (High-Voltage Laboratory). In operational tests in the TsVL mobile laboratory, it was found that these rectifiers had good operational indices and were superior to the filamentary vacuum tube rectifiers and gas tube rectifiers now in use. They do not emit unhealthy x-rays nor do they require a high-voltage filament transformer. The diodes, connected in series, are each shunted by capacitors of the POV type, 390 pf and 15 kV, to provide uniform voltage distribution for the diodes. Photographs of the device are reproduced, a schematic is given, and the construction of the device is explained. A table of the specifications for diodes D1007, D1008, KR-220, D-233B, and D-234B, capable of use in half-wave and full-wave circuit variations, is given.

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1/2 029
TITLE--ARGON ARC WELDING -U-

UNCLASSIFIED

P PROCESSING DATE--04DEC70

AUTHOR--(04)--LEBEDEV, V.K., PENTEGOV, I.V., STEMKOVSKIY, YE.P., SIDORENKO,
M.N.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 248115
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI BUL
DATE PUBLISHED--05JAN70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., MECH., IND., CIVIL AND
MARINE ENGR
TOPIC TAGS--INERT GAS ARC WELDING, WELDING EQUIPMENT, POWER SUPPLY,
THYRISTOR, ELECTRIC TRANSFORMER, ELECTRIC CAPACITOR, PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/1047

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0131601

UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AA0131601

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MICROFICHE OF ABSTRACT CONTAINS GRAPHIC INFORMATION. ARGON ARC WELDING WITH POWER TRANSFORMER, VARIABLE CHOKE AND A BATTERY OF CAPACITORS ALL IN SERIES WITH THE WELDING ARC, IMPROVES WELDING BY INTRODUCING A CONTROLLED D.C. CURRENT COMPONENT INTO THE WELDING CIRCUIT WITHOUT MAGNETIC BIAS OF THE POWER TRANSFORMER, AN EXTRA SECONDARY WINDING IS APPLIED TO THE TRANSFORMER. THIS WINDING FORMS, IN CONJUNCTION WITH THE SATURATION CHOKE AND THE RECTIFIER, A D.C. SOURCE WITH A SHARPLY DROPPING CHARACTERISTIC AND CONNECTED TO THE ARC GAP VIA AN L SHAPED FILTER. PARALLEL TO THE CAPACITOR BATTERY ARE PLACED A THYRISTOR AND A RESISTOR WHICH PROTECT THE CAPACITORS FROM OVERVOLTAGE WHEN THE ARC IS BROKEN. THE CONTROLLING ELECTRODE OF THE THYRISTOR IS CONNECTED TO ITS ANODE VIA A RESISTOR, A VOLTAGE STABILISER AND UNCONTROLLED DIODE, ALL IN SERIES.
FACILITY: INSTITUT ELEKTROSVARKI IM YE. O. PATONA.

UNCLASSIFIED

USSR

PENTEGOV, V. V., Dokl. Vses. nauchno-telchn. konferentsii po
radiotekhn. izmereniyam. T. 2, 1970, pp 167-170

should be used as the information media. A block diagram of a registration device is given together with schematic diagrams of devices for a three-place analog-digital converter which uses the binary-decimal system of notation. Two illustrations, bibliography of four titles. E. L.

2/2

AP9032902

UR 0289

PRIMARY SOURCE: Izvestiya Sibirskogo Otdeleniya, AN SSSR,
Seriya Khimicheskikh Nauk, Nr 12(162), Nr 5,
PP 116-122

E. N. Shmidt, V. Beneshova,
M. A. Chircova, V. A. Pentegova

THE CHEMISTRY OF THE GENUS PICEA
PART 1. DITERPENOID COMPOUNDS FROM OLEORESIN
OF PICEA AJANENSIS F.

High-boiling neutral part from oleoresin of *Picea ajanensis* have been investigated. The following compounds were isolated: cembrene, isofillocladene, -fillocladene, epimanoxyloxyde, manool, epimanool, isoabienol, fillocladanol and its epimer. Tetracyclic diterpenoids predominate in the neutral fraction of the oleoresin of *Picea ajanensis* Fisch.

1949 1597

1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ADDITIONAL EXPERIMENTAL DATA ON THE VIBRATIONAL SPECTRA OF
2, HALOBUTANES -U-
AUTHOR--(03)-KERESTURI, G., ULYANOVA, O.D., PENTIN, YU.A.
COUNTRY OF INFO--USSR
SOURCE--ZH. FIZ. KHIM. 1970, 44(3), 787-8
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--VIBRATION SPECTRUM, CHLORINATED ORGANIC COMPOUND, BROMINATED
ORGANIC COMPOUND, BUTANE, RAMAN SPECTRUM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1630 STEP NO--UR/0076/70/044/003/0787/0788
CIRC ACCESSION NO--AP0125252
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125252

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE VIBRATIONAL SPECTRA OF
2,CHLORO, AND 2,BROMO BUTANES WERE OBTAINED AT 230-450 CM PRIME
NEGATIVE1. THE RAMAN SPECTRA IN LIQ. AND CRYST. PHASES WERE SCANNED,
AND THE DEGREE OF DEPOLARIZATION OF THE BANDS WAS DETD.
FACILITY: KHIM. FA., MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr.

AP0049968

Abstracting Service:
CHEMICAL ABST. 5/70

Ref. Code

4R0051

105497g Energy differences of 2-chlorobutane rotational isomers. Ul'yanova, O. D.; Pentin, V. A. (USSR). *Opt. Spektrosk.* 1979, 28(1), 198-9 (Russ). Av. difference in energy of optical isomers of 2-chlorobutane is 780 in the liq. phase and 810 cal/mole in the vapor phase. The values were detd. spectrophotometrically. HMJR

REEL/FRAME
19801906

7 N

1/2 009 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--ABSORPTION SPECTRA OF CADMIUM HALIDE CRYSTALS -U-

AUTHOR--(04)-LYSKOVICH, A.B., ZHEREBETSKIY, S.K., CHORNIY, Z.P., PENTSAK,
G.M.

COUNTRY OF INFO--USSR

SOURCE--UKR. FIZ. ZH. (RUSS. ED.) 1970, 15(4), 606-10

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--CADMIUM COMPOUND, HALIDE, BROMIDE, CRYSTAL ABSORPTION
SPECTRUM, CADMIUM CHLORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3007/0469

STEP NO--UR/0185/70/015/004/0606/0610

CIRC ACCESSION NO--AP0135932

UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0135932

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AT 90DEGREESK, THE ELECTRONIC ABSORPTION SPECTRA OF CRYST. CDCL SUB2 AND CDBR SUB2 SHOWED PRESENCE OF IMPURITIES. IN CDCL SUB2, BR IMPURITIES SHIFTED ABSORPTION MAX. TO LONGER WAVELENGTH AND THE PRESENCE OF I CAUSED A LAMBDA SUBMAX AT 246 MMU. ALL INVESTIGATED CDBR SUB2 SAMPLES CONTAINED SOME I IMPURITIES GIVING LAMBDA SUBMAX AT 274 MMU. THE PRESENCE OF PB PRIME2POSITIVE IN CDCL SUB2 AND CDBR SUB2 CAUSES APPEARANCE OF LAMBDA SUBMAX AT 284 AND 315 MMU, RESP. FACILITY: L'VOV. GOSUNIV. IM. FRANKO, LVOV, USSR.

UNCLASSIFIED

1/2 033

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--RECOMBINATION OF NONEQUILIBRIUM CURRENT CARRIERS IN P, INDIUM
ANTIMONIDE AT TEMPERATURES BELOW 77DEGREESK -U-

AUTHOR--(04)-GUSEINOV, E.K., NASLEDOV, D.N., PENTSOV, A.V., POPOV, YU.G.

CCOUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. PCLUPROV. 1970, 4(1), 179-85

DATE PUBLISHED--70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--INDIUM ANTIMONIDE, ELECTRON RECOMBINATION, LOW TEMPERATURE
EFFECT, TEMPERATURE DEPENDENCE, PHOTOCONDUCTIVITY, PHOTOMAGNETIC EFFECT,
ELECTRON HOLE, ELECTRON TRAPPING, SEMICONDUCTOR CARRIER

CCNTRL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1583/1307

STEP NO--UR/0449/70/004/001/0179/0185

CIRC ACCESSION NO--AP0054641

UNCLASSIFIED

2/2 033

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0054641

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE TEMP. DEPENDENCES OF ELECTRON AND HOLE LIFETIMES IN P-TYPE INSB WERE INVESTIGATED AT SMALLER THAN 77 DEGREES K BY MEASURING THE STATIONARY PHOTOCOND., THE PHOTOMAGNETIC EFFECT, AND THE PHOTOCOND. RELAXATION. WHEN THE HOLE CONC. DECREASES, THE SHALLOW ACCEPTOR LEVEL, $E_{\text{SUBNU}} + 8 \times 10^{-3}$ PRIME NEGATIVE 3 EV, HAS A SUBSTANTIAL EFFECT ON RECOMBINATION. AT THE SAME TIME, THE HOLE LIFETIME DECREASES EXPONENTIALLY AND THE ELECTRON LIFETIME INCREASES BY NEARLY 1 ORDER. THE COEFF. OF ELECTRON TRAPPING IN THIS LEVEL IS 2×10^{-6} CM PRIME 3-SEC. THE HEATING OF ELECTRONS BY LIGHT HAS AN ESSENTIAL EFFECT ON RECOMBINATION.

UNCLASSIFIED

USSR

UDC 620.193.43

PEYAGINA, O. P., OZERYANAYA, I. N., SMIRNOV, M. V., SHIBANOV, B. S., and SHAMANOVA, N. D., Academy of Sciences USSR, Ural Branch, Institute of Electrochemistry

"Passivation of Iron and Nickel in Molten Carbonates"

Moscow, Zashchita Metallov, Vol 8, No 3, May-Jun 72, pp 312-314

Abstract: A study was made of the passivation of NO nickel and Armco iron in carbonate melts. Significant passivation of nickel is observed in the ternary eutectic mixture of lithium, sodium, potassium carbonates at 800°. At 600° there is appreciable inhibition only of the dissolution of electrodes electro-polished or working in contact with electronegative titanium. At 800° the phase composition of the film on the electrode changes as a result of the insertion of lithium oxide in the crystal lattice of nickelous oxide (solid solution $\text{Li}_2\text{O} \cdot \text{NiO}$). The corrosion rate and steady-state potentials do not depend on the cation composition of the melt. The influence of the nature of the melt is noted in the anodic polarization of nickel under potentiostatic conditions.

1/2

USSR

PENYAGINA, O. P., et al., Zashchita Metallov, Vol 8, No 3, May-Jun 72, pp 312-314

The kinetic characteristics of Armc iron passivation were studied in a eutectic mixture of lithium, sodium, and potassium carbonates (0.43 : 0.32 : 0.25) at 600°. In contrast to nickel, the rate of anodic dissolution of iron at this temperature is high from the very start of polarization. The process is accompanied by intensive covering of the surface of the metal with products of its interaction with ions of the melt, and it reaches a maximum in the region of sufficiently negative potential values and then a sharp transition of the electrode to the passive state is observed. The iron electrodes after the test were coated with a film, X-ray diffraction analysis of which shows the formation of compounds of the LiFeO_2 and Fe_3O_4 spinel type on the surface of the iron during anodic polarization. Films with such a structure as a rule possess high protective properties.

2/2

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USSR

PENTYUKHOV, V. I.

"Effectiveness of Operation of a Nonlinear Stabilization System with Two Control Surfaces in a Turbulent Atmosphere"

Stroit. Mekh., Gazoerodinamika i Proiz-vo Letatel'n. Apparatov. Vyp. 1 [Structural Mechanics, Gas and Aerodynamics and Production of Flight Vehicles, No 1 -- Collection of Works], Voronezh, 1970, pp 187-194, (Translated from Referativnyy Zhurnal, Mekhanika, No 4, 1972, Abstract No 4 B251 by the author).

Translation: A study is made of the dynamics of longitudinal movement of an aircraft with a nonlinear stabilization system with additional control surfaces on the wings in a turbulent atmosphere. It is demonstrated that the connection between control channels of the additional surfaces and the elevator allows the negative influence of high values of (m_z^{δ}) characteristic for modern aircraft with δ wings to be eliminated, and provides high effectiveness of the stabilization system with realistic characteristics of the control surfaces and rather rigid limitations on the maximum permissible angle of the deflection of the additional surfaces. 5 Biblio. Refs.

1/1

Semiconductors and Transistors

USSR

UDC 537.311.33

BALODIS, YA.K., ~~PENTYUSH, E.V.~~, PURITIS, T.YA., FONAV, E.A., EGLITIS, V.YA.

"Light Emitting Phenomena Of Mesoplasma In Silicon P-N Junctions In A Pulse Regime"

V sb. Poluprovodniki i ikh primeneniye v elektrotekhn. (Semiconductors And Their Application To Electrical Engineering--Collection Of Works), No 5, Riga, "Zinatne," 1971, pp 139-152 (from RZh:Elektronika i yeye primeneniye, No 1, Jan 72, Abstract No 1B131)

Translation: The time dependence of light emission of mesoplasma in a pulse regime is investigated. The regularities established are evidence that the appearance of light emission preceding an abrupt change of the voltage or current are dependent upon the appearance of mesoplasma. The degree of warming up of the carriers is analyzed as well as the possibility of the appearance of recombination radiation in the "pre-mesoplasma" state and in the time of existence of the mesoplasma. 6 ill. 34 ref. Summary.

1/1

1/2 036

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--ISOTHERMAL VOLT AMPERE CHARACTERISTICS OF MESOPLASMA IN SILICON LOW
VOLTAGE P-N JUNCTIONS -U-

AUTHOR--(03)--PENTYUSH, E.V., FONOV, E.A., PURITIS, T.

COUNTRY OF INFO--USSR

SOURCE--LATV. PSR ZINAT. AKAD. VESTIS, FIZ. TEH. ZINAT. SER. 1970, (2),
26-9

DATE PUBLISHED--70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PN JUNCTION, SEMICONDUCTOR PLASMA, VOLT AMPERE CHARACTERISTIC,
SILICON SEMICONDUCTOR, PULSE SIGNAL, ISOTHERM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--2000/1144

STEP NO--UR/0371/70/000/002/0026/0029

CIRC ACCESSION NO--AP0124799

UNCLASSIFIED

2/2 036

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124799

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD USING A DOUBLE STEP SQUARE VOLTAGE PULSE APPLIED TO THE P-N JUNCTION IS PROPOSED TO DET. THE ISOTHERMAL V-A CHARACTERISTICS OF MESOPLASMA IN SI P-N JUNCTIONS. SUCH CHARACTERISTICS HAVE 2 REGIONS OF POS. DYNAMIC COND., BETWEEN WHICH LIES AN ALMOST SATD. REGION OF SMALL NEG. DYNAMIC COND. HIGH COND. IN THE LOW VOLTAGE REGION OF THE POS. DYNAMIC COND. IS DUE TO THE LARGE CONCN. OF CURRENT CARRIERS AND THE HIGH TEMP. REGION OF THE MICROPLASMA. THE REASONS FOR THE APPEARANCE OF THE HIGH VOLTAGE REGION OF THE POS. DYNAMIC COND. ARE NOT CLEAR. FACILITY: FIZ.-ENERG. INST., RIGA, USSR.

UNCLASSIFIED

USSR

UDC 621.371:538.569.4 6

ABLYAZOV, V. S., BASHARINOV, A. Ye., GORELIK, A. G., GORDON, Z. I.,
KALASHNIKOV, V. V., KUTUZA, B. G., MITNIK, L. M., PENYAZ', L. A.,
FROLOV, A. V., and FROLOV, Yu. A.

"Absorption and Radiation of the Atmosphere in the 0.5-10 cm Range"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl.
(Tenth All-Union Conference on the Propagation of Radio Waves;
Report Theses--collection of works) "Nauka," 1972, pp 3-7 (from
RZh--Radiotekhnika, No 10, 1972, Abstract No 10A309)

Translation: The method and the results of measuring the absorption and radiation of the atmosphere for waves of 0.5-10 cm and, in particular, in the absorption bands of oxygen and water vapor, are given. The measurements were made for the purpose of investigating the propagation of uhf waves under various meteorological conditions, which were recorded simultaneously with the radio measurements. Curves are given of the attenuation and radio brightness temperature for rain clouds. Two illustrations, bibliography of five. N. S.

1/1

BIOLOGY
Agriculture

USSR

UDC 595.786:577.95

GEYSPITS, K. F., PENYAZ', M. I., and SHASHENKOVA, D. Kh., Biological Institute,
Leningrad State University

"Photoperiod and Temperature as Factors in the Development of the Moth
Agrostis segetum (Lepidoptera, Noctuidae)"

Leningrad, Zoologicheskii Zhurnal, No 11, 1971, pp 1,674-1,685

Abstract: Experiments designed to elucidate the role of light and temperature in the development of two geographic populations of the turnip moth *Agrostis segetum* (from the North Caucasus and South Tadzhikistan) revealed the existence of two types of diapause, pronymphal and larval. Both types of dormancy are facultative in that they occur only when there are certain combinations of environmental factors. The pronymphal diapause is most pronounced when moderate temperatures are combined with short photoperiods, i.e., the factors characteristic of natural conditions preceding preparation for the winter. The larval diapause occurs when high temperatures are combined with long photoperiods. At this time the larvae feed less intensively and grow much more slowly, although they remain active. Feeding helps the larvae to maintain the water balance and thus adapt to summer heat and drought. The experimental findings are applied to the observations of other investigators on the behavior of *Agrostis segetum* under natural conditions.

1/1

USSR

UDC 681.335.713

CHVARKOV, V. B., and PENYUGALOV, N. A.

"A Device for Integrating Functions"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,
No 21, Jul 71, Author's Certificate No 308436, Division G, filed 12 Jan 70,
published 1 Jul 71, p 186

Translation: This Author's Certificate introduces a device for integrating functions presented in a system of residual classes. The device contains an operational amplifier, with a capacitor in the feedback circuit, and also comparison circuits and relays. As a distinguishing feature of the patent, the functional possibilities of the device are extended by incorporating a second capacitor in the feedback circuit of the amplifier and by including a single-polarity voltage shaper, controlled switch, kipp oscillator, flip-flop, sign-determining module, and adder. The output of the operational amplifier is connected to one of the adder inputs, through the sign-determining module to its other input, and through the series circuit comprised of the single-polarity voltage shaper and the controlled switch to the inputs of the comparison circuits. The outputs of the comparison circuits are connected through the kipp oscillator to the flip-flop, and the output

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USSR

CHVARKOV, V. B., and PENYUGALOV, N. A., Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 21, Jul 71, Author's Certificate No 308436, Division G, filed 12 Jan 70, published 1 Jul 71, p 186

of the flip-flop is connected to a relay winding. The plates of the first capacitor are connected through the normally closed contacts of this relay, and the plates of the second capacitor are connected through its normally open contacts to the input and output of the operational amplifier. The plates of the first capacitor are also connected through normally open contacts, and the plates of the second capacitor are connected through normally closed contacts of the same relay to a ground bus and to the adder output.

2/2

- 51 -

1/2 005 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--A STUDY OF TRANSAMIDINASE ACTIVITY WITH RESPECT TO STREPTOMYCIN
BIOSYNTHESIS -U-
AUTHOR--(02)-PENZIKOVA, G.A., LEVITOV, M.M. 
COUNTRY OF INFO--USSR
SOURCE--MIKROBIOLOGIYA, 1970, VOL 39, NR 2, PP337-342
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--STREPTOMYCIN BIOSYNTHESIS, TRANSAMIDINASE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1985/0397 STEP NO--UR/0220/70/039/002/0337/0342
CIRC ACCESSION NO--AP0100883
UNCLASSIFIED

2/2 005

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0100883

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MYCELIUM OF ACT. STREPTOMYCINI 773, PRODUCING STREPTOMYCIN, CONTAINED TRANSAMIDINASE WHICH ACTIVITY RISED DURING CULTURAL GROWTH IN PARALLEL WITH ANTIBIOTIC ACTIVITY. TRANSAMIDINASE ACTIVITY WAS COMPARED IN THE GENETICALLY DIFFERENT STRAINS PRODUCING STREPTOMYCIN AND IN THE MUTANTS WITH IMPAIRED BIOSYNTHESIS OF THIS ANTIBIOTIC. SOME CORRELATION WAS ESTABLISHED BETWEEN THE LEVELS OF ENZYME AND ANTIBIOTIC ACTIVITY. TRANSAMIDINATION REACTION AND STREPTOMYCIN BIOSYNTHESIS WERE CARRIED OUT BY THE NON ACTIVE MUTANTS DUE TO STIMULATING FACTORS OF NON ENZYME NATURE. THESE DATA SUGGEST THE NECESSARY PARTICIPATION OF TRANSAMIDINASE IN STREPTOMYCIN BIOSYNTHESIS.

UNCLASSIFIED

USSR

UDC 629.78.018.1

OSTRAS', V. N., PENZIN, V. I.

"Experimental Study of the Force Applied to the Inner Surface of a Cylindrical Tube in Which There is a Nonuniform Supersonic Flow Produced by Conical Nozzles"

Uch. zap. Tsentr. aerogidrodinam. in-ta (Scientific Notes of the Central Aerohydrodynamic Institute), 1972, Vol. 3, No. 4, pp 29-36 (from RZh-41. Raketostroyeniye, No 11, Nov 72, Abstract No 11.41.108)

Translation: The force of friction applied to the inner surface of a cylindrical tube was measured on tensometric weights under conditions when there is a nonuniform supersonic flow along its entire length produced by conical nozzles. Experiments in which the supersonic flow is produced by shaped nozzles providing a uniform velocity field at the input to the tube were conducted to separate the effect of compression shocks arising in the channel from using conical nozzles. The experiments were conducted at Mach numbers $M_H = 2.5-3.8$ at the input to the tube and Reynolds numbers $Re_d = 16^6-10^7$,

USSR

OSTRAS', V. N., PENZIN, V. I., Uch. zap. Tsentr. aerogidrodinam. in-ta, 1972, Vol. 3, No. 4, pp 29-36

$T_w = 0.92$, a change of the angle of incidence of the generatrix of the nozzle to the axis of the tube γ from 13 to 26° and for two values of the relative roughness $K_s = 1.25 \cdot 10^{-4}$ and $2 \cdot 10^{-5}$. It is shown that the presence of compression shocks leads to an increase in the coefficient of friction resistance basically due to a decrease in the Mach number of the flow. The values of the forces of friction in these uniform flows for a turbulent boundary layer and identical Re_d numbers can be approximately assumed to be equal if the average M number of the nonuniform flow at the input to the channel is equal to the M number of the uniform flow in the same cross section. The relative roughness has approximately the same effect on the coefficient of friction as in the case of the flow of an incompressible fluid. The stress of friction along the channel is practically constant, making it possible to use the average coefficient of friction resistance c_F analogous to the average coefficient of friction resistance c_{F0} for an incompressible fluid. The relationship $c_F = c_{F(M)}$ is close to the analogous relationship obtained for a plate.

6 ill., 6 ref. Resume.
2/2

- 2 -

USSR

UDC 51

PENZIN, YU. G., Editorial Board of Sib. mat. zh. (Siberian Mathematical Journal)

"Solvability of the Theory of Integers with Addition, Order, and Divisibility by an Arbitrary Number"

Razreshimost' teorii tselykh chisel so slozheniyem. porvadmom i delimost'yu na proizvol'noye chislo (cf. English above), Novosibirsk, 1971, 7 pp, bibliography with four titles, No 3208-71 Dep (from RZh-Matematika, No 2, Feb 72, Abstract No 2A123 Dep from author's abstract)

Translation: The article proves the solvability of the elementary theory of rational integers with addition, order, and a one-place predicate of divisibility by an arbitrary integer. The proof is given by the method of model completeness. Of known results in this connection it can be noted that, generally speaking, the theory of the addition of integers with a complementary one-place predicate is unsolvable. Also unsolvable is the theory of integers with addition and a two-place indivisibility predicate, since multiplication can be expressed in this signature.

1/1

USSR

UDC 621.3.032.26

PENZYAKOV, V.V. PETROSYAN, A.I."Shaping Of Electron Beam By Electrostatic Lenses"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, Issue 9, pp 79-85 (from RZh--Elektronika i yeye primeneniye, No 1, 1971, Abstract No 1A14)

Translation: A method is proposed for computation of electrostatic lenses based on equations of the theory of synthesis of electronoptical systems. These equations make it possible to find a distribution of the current density of the beam cross section such that the trajectories of the electrons in the beam have a period equal to the period of a system of electrostatic lenses. The lenses computed were modeled on a digital computer. Satisfactory agreement was obtained between the results of modeling and computation, which indicates the possibility of computation of electrostatic lenses by the proposed method and in the case when the condition of smallness $\Delta U/U$ is violated, i.e., the ordinary methods of computation of periodic electrostatic focusing in traveling wave tubes becomes inapplicable (ΔU -focusing of potential differences; U - average potential of the beam). 9 ill. 8 ref. G. B.

1/1

USSR

UDC 536.46+669.715

BREYTER, A. L., KASHFOROV, L. Ya., MAL'TSEV, V. M., ~~POKHIL, P. F.~~
POPOV, Ye. I., ~~PEPEKHIN, V. I.~~, and STASENKO, A. C., Moscow

"Burning of Single Particles of Aluminum-Magnesium Alloys in the
Flame of Oxidizer-Fuel Mixture"

Novosibirsk, Fizika Goreniya i Vzryva, Vol 7, No 2, Jun 71,
pp 222-227

Abstract : The burning of single particles of aluminum-magnesium alloys in the tongue of the flame of a mixture of ammonium perchlorate and urotropine of stoichiometric composition (88 % ammonium perchlorate and 12 % urotropine) was experimentally investigated. The investigation results are discussed by reference to photographs of typical tracks of burning particles and diagrams showing the dependences of the inflammation time lag and the particle fraction subjected to explosive burning on particle composition. From the viewpoint of complete burning by modified fuel on aluminum base, alloys with 30-45 % aluminum and 55-70 %

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SR

AREYER, A. L., KASHPOROV, L. Ya., et al., Fizika Goreniya i Vzryva, Vol 7, No 2, Jun 71, pp 222-227

magnesium are considered to be effective. The characteristics of burning of the metal component are determined by the nature of included metals: the permeability of its oxidic layers, reaction capability, surface activity, volatility, fusing temperature, density change by fusing, and the burning temperature. Five illustr., one table, 16 biblio. refs.

2/2

- 30 -

Explosives and Explosions

USSR

UDC 542.91:547.722

NIKOLAYEVA, A. D., MATYUSHIN, YU. N., PEPEKIN, V. I., SMELOV, V. S.,
VULIDOROV, V. V., BULIDOROVA, T. I., and APIN, A. YA., Institute of Chemical
Physics, Acad. Sc. USSR

"Synthesis and Study of the Detonation Properties of 3-Methyl-4-nitrofuroxane"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 4, Apr 72,
pp 965-967

Abstract: A safe and simple synthesis of 3-methyl-4-nitrofuroxane (MNF) has been developed. The synthesis is based on the reaction of sodium nitrite mixed with H_2SO_4 with a solution of metacrylic acid in dichloroethane at 50° . MNF can also be obtained in a 24% yield from a mixture of acetone, nitroacetone, and nitropropylene treated with a mixture of nitrogen tetroxide and nitric acid. Experimentally the thermochemical and detonational properties of MNF have been determined: heat of combustion $\Delta H_{comb}^\circ = 408.7 \pm 0.2$ kcal/mole; enthalpy of the formation of MNF $\Delta H_f^\circ = 24.1 \pm 0.2$ kcal/mole. The detonation rate with a 1.60 g/cm^3 density of the charge was found to be $D_{1.6} = 7450 \text{ m/sec}$. With charge densities 0.64 and 1.64 g/cm^3 the heats of explosive detonation of MNF were 1180 and 1330 kcal/kg respectively. MNF is a crystalline material, m.p. $67-68^\circ$; it has high thermal stability and can be recrystallized from hot water.

1/1

PEPELYAYEV, Yu. V.

DYNAMICS OF THE CONTENT OF CARBON MONOXIDE IN AN ATMOSPHERE REGENERATED BY CHLORELLA

UDC 582.264.45-111.5:546.262-31

JPRS 56080
18 May 72

Article by A. I. Izrael, V. I. Kiselevich and Yu. V. Pepeleyayev; Moscow, *Kosmopolitika* (Moscow), Medicine, 1972, No 2, March-April 1972, pp 13-16, submitted for publication 26 July 1971.

Abstract: This paper presents experimental results indicating that carbon monoxide can be accumulated in the enclosed environment of a Chlorella reactor in a "non-Chlorella" system and remain at a relatively constant level. The stabilized level of the carbon monoxide content in an enclosed atmosphere may vary. It is likely to be associated with the photosynthetic activity of Chlorella cells, which as was shown previously, may absorb carbon monoxide from the atmosphere.

It is well known that carbon monoxide is formed in the process of vital functions in animals and man. Carbon monoxide is released primarily in exhaled air. In man the concentration of carbon monoxide in the exhaled air, according to data from different authors, attains 0.008-0.011 mg/liter (Sjstrand; P. I. Bogachov, et al.; V. V. Kustov). The rate of its release, according to investigations made by Coburn, et al., is 0.42-0.07 ml/hour.

The endogenous formation and release of carbon monoxide into the atmosphere has also been noted for plants (Langdon; E. Rogers and G. Rogers), including unicellular algae (Wilks; Garford and Craft; Myers; Bates; Blegel). Cultivation of unicellular algae in a closed air volume results in the atmospheric accumulation of carbon monoxide in a concentration from 0.003% (Bates) to 0.08% (Garford and Craft). According to our data (M. M. Kozlov, et al.), the carbon monoxide concentration in the air in an algae cultivator was 0.003-0.09 mg/liter and was inversely proportional to the intensity of the photosynthesis process in algae cells.

1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--UTILIZATION OF THE COMPLEX FORMING PROPERTIES OF METALS FOR THE
PURIFICATION OF AN ATMOSPHERIC MOISTURE CONDENSATE FROM AMMONIUM IONS
AUTHOR--(05)--YEGOROVA, L.E., KRASNOSHCHIEV, V.V., PATRIKEYEVA, T.M.,
PEPELIAYEV, YU.V., STOLBOV, V.F.
COUNTRY OF INFO--USSR
SOURCE--KOSMICHESKAIA BIOLOGIYA I MEDITSINA, VOL. 4, JAN.-FEB. 1970, P.
56-60
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--MAGNESIUM, ZINC, COPPER, COBALT, NICKEL, AMMONIUM COMPOUND,
ION EXCHANGE RESIN
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1997/1559 STEP NO--UR/0453/70/004/000/0056/0060
CIRC ACCESSION NO--AP0120338
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0120338

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF A PROCEDURE FOR THE ELIMINATION OF AMMONIUM IONS FROM ATMOSPHERIC MOISTURE CONDENSATES BY TREATMENT WITH ME(MG, ZN, CU, CO, NI) EXCHANGE RESINS. THE VOLUME SORPTION CAPACITY OF THESE ION EXCHANGE RESINS IS STUDIED AS A FUNCTION OF THE AMMONIUM CONCENTRATION AND PH. EXPERIMENTS INDICATE THAT AMMONIA, AMINES AND AMINO ACIDS CAN BE EFFECTIVELY REMOVED FROM AQUEOUS SOLUTIONS BY THIS METHOD.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--USE OF THE COMPLEX FORMING PROPERTIES OF METALS FOR FREEING
ATMOSPHERIC CONDENSATE FROM AMMONIUM IONS -U-
AUTHOR--YEGOROVA, L.E., KRASNOSHCHIEKOV, V.V., PATRIKEYEVA, T.M.,
PEPELYAYEV, YU.V., STOLBOV, V.F.
COUNTRY OF INFO--USSR

SOURCE--MOSCOW, KOSMICHESKAYA BIOLOGIYA I MEDITSINA, RUSSIAN, VOL 4, NO 1,
JANUARY-FEBRUARY 1970, SUBMITTED FOR PUBLICATION 25 SEPTEMBER 1969, PP
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--AMMONIA, ADSORPTION, CATION EXCHANGE RESIN, METAL COMPLEX
COMPOUND, ATMOSPHERIC WATER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAHE--1987/1291

STEP NO--UR/0453/69/004/001/0056/0060

CIRC ACCESSION NO--AP0104629

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--11SEP70

GIRC ACCESSION NO--AP0104629

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY WAS MADE OF THE SORPTION OF AMMONIUM, WHICH IS ONE OF THE MAIN COMPONENTS OF ATMOSPHERIC CONDENSATE, FROM WATER SOLUTIONS BY MEANS OF CATION EXCHANGE RESINS IN THE ME FORM. THE RELATIONSHIP BETWEEN THE VOLUME CAPACITY OF CATIONITES IN ME FORM, THE AMMONIUM CONCENTRATION IN THE SOLUTION AND THE HYDROGEN ION CONCENTRATION WAS EXAMINED. IT WAS FOUND THAT THE USE OF CATIONITES IN ME FORM (PARTICULARLY IN THE CU FORM) INCREASED THEIR AMMONIUM CAPACITY.

UNCLASSIFIED

PEPELYAYEV, V. Yu.

file is PEPELYAYEV

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STPS 55008

1-73

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SESSION VII

VII-1a. APPLICATION OF THE METHOD OF CONTINUOUS WEIGHING FOR STUDYING THE ETCHING AND GROWTH PROCESSES IN THE Ga-AsCl₃-H₂ SYSTEM

[Article by L. I. D'yakov, E. S. Kopolovitch, V. K. Maslov, V. Yu. Pepeleyev, B. I. Buda, Ye. V. Solov'yev, Moscow; Novosibirsk, III Simposium po Protsessam Rosta i Strukt. Poluprovodnikov Kristallov i Plenny, Krasnoyarsk, 12-17 June, 1974, p. 85]

A simple method of continuous weighing has been developed to investigate the etching rates of gallium and the growth of the epitaxial layer of GaAs. On completion of the period of saturation of the gallium with arsenic, the composition of the gas phase is changed sharply, and the gallium content in the gas flow under stationary conditions corresponds to the equilibrium above the solid gallium arsenide, and the arsenic content is determined by the amount of AsCl₃ introduced into the reactor. In contrast to the available published data it has been found that the growth rate of the GaAs layer is established practice immediately with respect to completion of the saturation period. The nature of the experimental dependences of the growth rate on the process parameters indicates that the growth of GaAs takes place in the diffusion-limited region. The temperature profile in the reactor was determined for which the radial gradients are eliminated which cause uncontrolled nucleation of the GaAs on the reactor walls in the substrate zone. A study was made of the effect of the conditions of the growth process on the structure and the electrical properties of the unalloyed epitaxial layers of GaAs. The electron mobility in the layers grown under optimal conditions reached 8250 cm²/v-sec at 300°K and 63,000 cm²/v-sec at 77°K with a concentration of them of $3 \cdot 10^{16}$ cm⁻³.

PEPELYAYEV, V. YU.

IPRS 57808
C-73

VII-1b. PROPERTIES OF ALLOYED EPITAXIAL LAYERS OF GALLIUM ARSENIDE GROWN IN THE $\text{Ga-AsCl}_3\text{-H}_2$ SYSTEM

Article by L. I. D'yachenko, L. A. Zhukova, E. S. Kopylovich, V. N. Maslov, V. Yu. Pepelyayev, B. I. Ruda, Ye. V. Solov'yeva, Moscow: Novosibirsk, III Symposium on Processes in Solid State, Poluprovodnikovaya Kristallofizika, III, Novosibirsk, 12-17 June, 1974, p. 86.

Layers of gallium arsenide grown in the $\text{Ga-AsCl}_3\text{-H}_2$ system were alloyed either by thermal evaporation of the impurity (Te, In) or by introduction of it in the form of a gaseous compound (H_2Se , $(\text{C}_2\text{H}_5)_2\text{Zn}$). The dependence of the carrier concentration in the layers on the substrate concentration in the gas phase was found. With an increase in the substrate concentration in the effect on the growth rate. The use of decyl zinc does not lead to worsening of the electrophysical parameters of the layers by comparison with the growth by the method of thermal evaporation of zinc. The concentration of the alloying carriers in the layers alloyed with tellurium and selenium is reduced in the direction of the gas flow whereas in the layers alloyed with zinc, the concentration of the carriers increases a little. This difference is connected in the the difference in the coefficients of the vapor-crystal junction. According to the data of electrophysical studies, the degree of compensation of the donors in the layers alloyed with selenium is constant and close to 0.5. An increase in the tellurium concentration in the layer leads to an increase in the donor location density and the number of growth pyramids. In the epitaxially alloyed with selenium with a carrier concentration of the type of $5 \cdot 10^{18} \text{ cm}^{-3}$, either an increase in the dislocation density to $1 \cdot 10^6 \text{ cm}^{-2}$ or the appearance of specific microdefects was observed. At low alloying levels with selenium ($5 \cdot 10^{16} \text{ cm}^{-3}$) and in the entire range of alloying with zinc using decyl zinc, the dislocation density in the layer is close to the dislocation density in the substrate; the morphology of the layers does not change.

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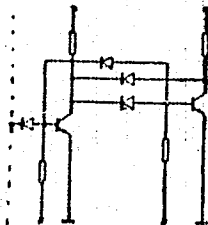
UDC: 621.375.4

PATS, V. B., PEPELYAYEVA, N. N.

"A Diode-Transistor Logic Element"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 10, Apr 72, Author's Certificate No 332576, Division H, filed 16 Dec 68,
published 14 Mar 72, p 225

Translation: This Author's Certificate introduces a diode-transistor logic element which contains an input diode circuit, and two series connected transistorized inverters with biasing diodes in the base circuit. As a distinguishing feature of the patent, reliability is improved by connecting the collector and base of the transistor in the first inverter through diodes to the collector and base respectively of the transistor in the second inverter.



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AN0027861

UR 9029

AUTHOR-- PERADZE, R., CORRESPONDENT

TITLE-- A FLOATING LABORATORY

NEWSPAPER-- ZARYA VOSTOKA, FEBRUARY 22, 1970, P 4, COLS 1-2

ABSTRACT-- A RESEARCH VESSEL OF THE "SCHS-150" TYPE HAS BEEN CON-
STRUCTED FOR THE GEORGIAN BRANCH OF THE ALL-UNION SCIENTIFIC-RESEARCH
INSTITUTE OF MARINE FISHERIES AND OCEANOGRAPHY BY AN AZOV SHIPYARD.

19671146

USSR

UDC: 669.29.295:669.094.3

PERADZE, T. A., FATKULLINA, L. P., Institute of Metallurgy imeni A. A. Baykov

"Mechanical Properties and Thermal Stability of Alloys in the System Ti-Zr-Al with High Oxygen Content"

Metallovedeniye i Termicheskaya Obrabotka Metallov, No 10, 1973, pp 9-10.

Abstract: This work studies the mechanical properties of AK3 alloy (2.1% Al, 5.3% Zr, 0.35% O) at room temperature and at elevated temperatures, its thermal stability, long-term and fatigue strength. Annealing of the alloy over 950° C reduces ductility. At lower temperatures, the mechanical properties remain almost unchanged in comparison to annealing at 800° C, the lowest temperature used. The alloy was found to be thermally stable at 400, 500 and 600° for holding times up to 1000 hr. Short-term strength testing showed that the tensile strength stayed at 40 kg/mm² up to 500° C, then dropped sharply, the ductility increasing. However, deformation aging in the presence of interstitial atoms causes the ductility of the alloy to drop noticeably between 400 and 500°.

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USSR

UDC 669.295'71'296'787:620.17

KORNILOV, I. I., PERADZE, T. A., VAVILOVA, V. V., FATKULKINA, L. P., and
KOROBV, O. S., Institute of Metallurgy imeni A. A. Baykov

"Oxygen in Alloys of Titanium with Aluminum and Zirconium"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 4, Apr 73,
pp 36-39

Abstract: The effect of zirconium in alloys of titanium with aluminum and oxygen as well as oxygen in alloys with aluminum and zirconium was investigated with respect to the modulus of elasticity, electrical resistance, hardness, and mechanical properties. For alloys of the system Ti-2Al-0.350, the addition of 2% Zr leads to increased tensile strength with almost unchanged ductility. The addition of 5% Zr leads to an insignificant increase in tensile strength and an insignificant lowering of ductility. Alloying the Ti-5Zr-0.350 system with up to 3% Al causes a significant increase in tensile strength and insignificant lowering of ductility. When more than 3% Al is added the proportional limit for the modulus of elasticity is exceeded, thus indicating that 3% Al is the solubility limit. Analysis of the system Ti-2Al-5Zr alloyed with oxygen showed that addition of 0.5% O does not lead to alloy embrittlement as long as the Al content is within the solubility limits. Ductility of the alloy remains at 12-16% elongation and 30-35% reduction in area. On the basis of the investigations a secondary titanium

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USSR

KORNILOV, I. I., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov,
No 4, Apr 73, pp 36-39

alloy (Author's certificate 298677) was proposed containing 2% Al, 2-5% Zr,
and 0.3-0.35% O. Five figures, one table, six bibliographic references.

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Mechanical Properties

USSR

UDC 620.17:669.295:621.791.052

GUREVICH, S. M., BLASHCHUK, V. Ye., PERADZE, T. A., and VAVILOVA, V. V.,
Institute of Metallurgy imeni A. A. Baykov

"Mechanical Properties of Weld Joints Made From Titanium Alloy AK-3 With
an Increased Oxygen Content"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 1, Jan 73,
pp 72-73

Abstract: The mechanical properties of AK-3 titanium alloy weld joints was studied for which the oxygen content was increased in the initial alloy by adding a titanium-oxygen alloy containing 23.63% oxygen during the remelting process, which yielded an oxygen content of 0.31% in the final alloy. After argon-arc welding with a nonconsumable tungsten electrode the oxygen content in the seam metal was 0.384%. Strength properties were slightly lower after annealing than after welding, but ductility and reduction in area were increased after annealing while impact strength also improved after annealing. The conclusion was made that weld joints of AK-3 titanium alloy (Ti-Al-Zr system) with an increased oxygen content (0.35%) possess satisfactory mechanical properties. 2 tables, 8 bibliographic references.

1/1

USSR

UDC 669.295

PERADZE, T. A., TAVADZE, F. N., Academician, Academy of Sciences, Georgian SSR, BLASHCHUK, V. YE., ONOPRIYENKO, L. M., and BOYEVA, G. YE.

"Corrosion Resistance of Titanium Alloys with Elevated Content of Oxygen in Hydrochloric and Sulfuric Acids"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 69, No 1, Jan 73, pp 109-112

Abstract: This work presents a study of the corrosion resistance of AK-3 alloys in hydrochloric and sulfuric acids. Specimens of the alloy were welded by an automatic argon-arc welding device with an infusible tungsten electrode, with subsequent annealing at 800° C for 30 minutes. The base metal and welded joint were tested for corrosion resistance in various concentrations of hydrochloric and sulfuric acids, test time 100 hours. In all cases, the welded joints showed corrosion rates similar to those of the base metal. The alloy Ti + 3% Al is less stable in the electrochemical respect than AK-3. Specimens of AK-3 alloy and its welded joints were also tested for resistance to corrosion cracking under stress in saturated solutions of NH_4Cl and CaCl_2 at the boiling point. Visual inspection and metallographic examination at 300 X magnification showed no cracks in the base metal or the welded seam.

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USSR

UDC 669.295.5'71'296'787.018.29(088.8)

KORNILOV, I. I., VAVILOVA, V. V., ANOSHKIN, N. F., FATKULLINA, L. P., and
PERADZE, T. A.

"Titanium-Base Alloy"

USSR Authors' Certificate No 298677, Cl. C 22c 15/00, filed 29 Dec 69, published 12 May 71 (from RZh-Metallurgiya, No 1, Jan 72, Abstract No 11755P by S. Kalabukhova)

Translation: A new Ti alloy with elevated strength properties is suggested. The Ti-base alloy containing Al and Zr as alloying additions is strengthened by the introduction of small quantities of O. The alloy contains (in %) Al 2-3, Zr 4-5, O 0.3-0.5, Ti the remainder. Mechanical properties of the alloy:

σ_B (20°)	90-120 kg/mm ² ,	σ_T	85-115 kg/mm ² ,	δ	10-25%,	ψ	30-52%;
σ_B (500°)	40-45 kg/mm ² ,	σ_T	30-35 kg/mm ² ,	δ	17-20%,	ψ	46-48%.

The alloy can be employed as a construction material. Semifinished products such as bars, sheets, and forgings can be made from it.

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Refractory Materials

3

USSR

UDC 666.76:620.1

BLUVSHTEYN, M. N. (deceased), ZYKOVA, Z. K. (All-Union Institute of Refractories), DAUKNIS, V. A., PERAG, A. Ya., YURENAS, V. L., YANULYAVICXUS, A. I. (Institute for Physical and Technical Problems of Power Engineering, Academy of Sciences Lithuanian SSR), and RABINOVICH, M. A. (Snigirevskiy Plant of Refractory Articles)

"Strength of Ultralight-Weight Refractories"

Moscow, Ogneupory, No 2, June 72, pp 43-47

Abstract: The Institute for Physical and Technical Problems, Academy of Sciences Lithuanian SSR has designed, built, and adapted for practical application an LV-1 set-up for testing the tensile, compressive, and bending strength of ultralight-weight refractories at temperatures up to 1200°C. A BV-662 inductance pickup is used for both measuring and recording the deformation values for the latter two types of stress tests. The test materials were ShLB-0,4 and ShLB-0,6 ultralight-weight refractory bricks. Curves are shown to illustrate the strength values of the bricks as a function of temperature and apparent density. There is only a slight variance in strength values up to 700-800°C. At 900°C there is a marked increase in strength for all types of load tests. At 1000-1100°C and higher

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USSR

BLUVSHTEYN, M. N., et al, Ogneupory, No 2, June 72, pp 43-47

the refractories begin to soften and change to viscoelastic state. The strength drops with an increase in temperature. (7 illustrations, 7 bibliographic references)

2/2

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1/2 012 UNCLASSIFIED PROCESSING DATE--30JCT70
TITLE--PREPARATION OF COMMERCIAL C SUB7-9 ACIDS BY THE LIQUID PHASE
OXIDATION OF NARROW FRACTIONS OF PARAFFIN -U-
AUTHOR-(02)-PERCHENKO, A.A., MARCHENKO, M.A.
COUNTRY OF INFO--USSR
SOURCE--KHIM. TEKHNOL. TOPL. MASEL 1970, 15(4), 30-3
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--OXIDATION, FATTY ACID, ALKANE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/1659 STEP NO--UR/0065/70/015/004/0030/0033
CIRC ACCESSION NO--AP0125281
UNCLASSIFIED

272 012

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125281

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PARAFFIN FRACTIONS, B. 260-350, 275-320, AND 250-300DEGREES WERE OXIDIZED IN 15.5-19.0 HR AT 125-110DEGREES AND FRACTION B. 230-270DEGREES IN 12.4 HR AT 120DEGREES WITH HOMOGENEOUS MN-NA CATALYST PREPD. WITH FATTY ACIDS C SUB5-9 YIELDING 68.5, 63.8, 56.4, AND 54.3PERCENT MIXT. OF WATER SOL. ACIDS, CALCD. ON THE PARAFFIN FRACTIONS, RESP. THE YIELD DECREASED WITH A DECREASE IN THE MOL. WT. OF PARAFFINS. THE CONTENT OF ACIDS C SUB7-9 IN THE ACID MIXT. OBTAINED WAS 21.9, 32.2, 33.6, AND 42.3PERCENT, RESP. THE ACID FRACTION C SUB7-9 OBTAINED BY OXIDIZING THE PARAFFIN FRACTION, B. 230-270DEGREES, CONTAINED NO UNSAPONIFIABLE MATTER.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--020CT70
TITLE--EFFECT OF A POTASSIUM MANGANESE CATALYST ON THE ACCELERATION OF THE
CONVERSION OF INTERMEDIATE PRODUCTS IN THE OXIDATION OF PARAFFIN TO
AUTHOR--PERCHENKO, A.A. *P*

COUNTRY OF INFO--USSR

SOURCE--KHIM. TEKHNOL. TOPL. MASEL 1970 15(3) 19-22

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--OXIDATION, PARAFFIN WAX, FATTY ACID, KETONE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1992/1490

STEP NO--UR/0065/70/015/003/0019/0022

CIRC ACCESSION NO--A70112484

UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--02 OCT 70

CIRC ACCESSION NO--AP0112484

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. PETROLEUM PARAFFIN WAX, WITH 0.07PERCENT MN OR 0.05PERCENT K STEARATE AS CATALYST, WAS OXIDIZED AT 130DEGREES TO ACID NO. 10-12, THEN AT TEMPS. GRADUALLY REDUCED TO 107DEGREES IN 4.5 HR, MN ACCELERATED THE OXIDN. OF KETONES AND ALCS. INITIALLY FORMED TO FATTY ACIDS. THE OXIDN. OF KETO AND HYDROXY ACIDS WAS ALSO ACCELERATED, K STERATE GREATLY REDUCING THE CONTENT OF THE LATTER.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--OXIDATION OF SOLID PETROLUEN PARAFFIN WAX FROM THE VOLOGRAD
REFINERY TO FATTY ACIDS -U-
AUTHOR--(03)-GORVACHEVA, G.A., PERCHENKO, A.A., OBEREMKO, A.V.
COUNTRY OF INFO--USSR
SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (1), 34-7
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--PARAFFIN WAX, OXIDATION, PETROLEUM PRODUCT, PETROLEUM
REFINERY, CARBOXYLIC ACID, CHEMICAL SYNTHESIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1996/1527 STEP NO--UR/0318/70/000/001/0034/0037
CIRC ACCESSION NO--AP0118514
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118514

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE C SUB10 C SUB20 STRAIGHTCHAIN ACID CONTENT OF THE OXIDIZED WAX CORRESPONDED TO THE AMT. OF N,PARAFFINS IN THE STOCK; A SIMILAR CORRESPONDENCE WAS FOUND FOR THE ISO ACIDS. A SOMEWHAT HIGHER CONTENT OF ISO ACIDS WAS DUE TO THE POST OXIDN. PRODUCTS OF THE ACIDS. PARAFFIN (AV. MOL. WT. 378), M. 53DEGREES AND CONTG. 96.5PERCENT N,PARAFFINS, WAS OXIDIZED 18 HR AT 107-30DEGREES WITH 0.3PERCENT KMNO SUB4 AS AN 8PERCENT SOLN., THE UNSAPOND. PART SEPD., MIXED 2:1 WITH FRESH PARAFFIN WAX, AND OXIDIZED 19.5 HR AT 105-20DEGREES WITH 0.085PERCENT MN AS MN-NA SALTS OF C SUB5-C SUB9 ACIDS. THE PROCESS YIELDED 77.2PERCENT MIXED ACIDS, INCLUDING 52.7PERCENT C SUB10-C SUB20 ACIDS. THE LATTER ACIDS CONTAINED 90-2PERCENT N,ALKANOIC ACIDS AND 9-7.5PERCENT ISO ACIDS.

UNCLASSIFIED

PEREBATOVA, M. A.

1/85 58275
21 Feb 73

- 54 -

In view of the fact that problems pertaining to organization of work in polyclinics of central rayon hospitals have not been described in the Soviet literature, our objective was to determine the actual work done by physicians of such institutions and the thoroughness of patient examinations. This was motivated by the fact that there is a large net-work of central rayon hospitals (472) in the Ukraine, and most of them (369, or 74%) have different sized otorhinolaryngological departments (10-40 beds). In accordance with Decree No 517, dated 5 July 1968, of the Central Committee of the CPSU and USSR Council of Ministers dealing with further improvement of public health care and development of medical science, at the present time new, large central rayon hospitals with specialized departments are under construction and in the process

of construction. In recent years reports have been published on scientific organization and standard setting for the work of otorhinolaryngologists in municipal polyclinics (V.N. Gryacheva; V.S. Kuznetsov; A.B. Korotkov; G.Y. Rastvorov). To study the scope and nature of work done by these physicians, the authors used a method developed by the Department of Scientific Organization of Labor of the All-Union Scientific Research Institute of Social Hygiene and Public Health Organization (Imanil N.A. Smashko). This method is based on determination of the scope of work done by the physician and nurse by means of time studies with due consideration of each patient or healthy visitor to the ENT (ear, nose, and throat) office. The use of the method of film and time studies combined with expert evaluation and subsequent statistical processing of the data collected enabled the authors to analyze all forms of activities of otorhinolaryngologists, to investigate the forms of organization of their work, and actual time spent seeing patients, as well as to determine the norms for duration of element of such work.

Article by M.A. Perebatova, Candidate of Medical Sciences, Kiev Scientific Research Institute of Otorhinolaryngology (director: A.I. Kojalovskiy), corresponding member of the Ukrainian Academy of Sciences; Moscow, Sovetskoye Zdravookhraneniye, Russian, No 1, 1973, submitted 25 August 1972, pp 41-46]

UDC: 614.23:616.21:658.367
ORGANIZATION OF WORK OF OTORHINOLARYNGOLOGISTS IN OUTPATIENT-POLYCLINICS OF CENTRAL RAYON HOSPITALS

medical sciences

1/2 029

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--THEORETICAL PRINCIPLES OF RAILROAD AUTOMATION AND TELEMECHANICS.

SECOND EDITION, REVISED AND SUPPLEMENTED. TEXTBOOK FOR STUDENTS OF

AUTHOR--(05)--BRYLEYEV, A.M., BOSIN, M.I., PEREBOROV, A.S., SMIRNOVA, A.V.,
EYLER, A.A.

COUNTRY OF INFO--USSR

SOURCE--TEORETICHESKIYE OSNOVY ZHELEZNODOROZHNOY AVTOMATIKI I

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SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, ELECTRONICS AND
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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS TEXTBOOK CONSISTS OF 23 CHAPTERS. 1. GENERAL CHARACTERISTICS, INDICATORS AND REQUIREMENTS PLACED ON AUTOMATION, TELEMECHANICS, AND COMMUNICATIONS ELEMENTS. 2. TRANSDUCERS. 3. TYPES OF RELAYS AND THEIR ACTUATING PARTS. 4. ELECTROMAGNETIC DC RELAYS. 5. TRANSIENT PROCESSES IN ELECTRO MAGNETIC RELAYS. 6. POLARIZED RELAYS. 7. AC RELAYS. 8. MAGNETIC ELEMENTS. 9. LOGICAL CONTACTLESS ELEMENTS. 10. BOOLEAN ALGEBRA. SYNTHESIS OF COMBINATION AUTOMATA. 11. SYNTHESIS OF FINITE AUTOMATA. 12. PRINCIPLES OF SELECTION. 13. PRINCIPAL UNITS OF TELEMECHANICAL SYSTEMS. 14. PROBLEMS OF INTERFERENCE STABILITY IN REMOTE CONTROL AND REMOTE SIGNALLING SYSTEMS. 15. TELEMTRY. 16. TYPES OF AUTOMATION. 17. PRINCIPLES OF AUTOMATIC CONTROL. 18. STATIC CHARACTERISTICS OF LINEAR ELEMENTS AND SYSTEMS. 19. DYNAMICS OF LINEAR AUTOMATIC CONTROL SYSTEMS. 20. EQUATIONS OF COMPONENTS AND AUTOMATIC CONTROL SYSTEMS. 21. STABILITY. 22. SYNCHRONOUS COMMUNICATIONS SYSTEMS. 23. RELIABILITY OF ELEMENTS AND SYSTEMS OF RAILROAD AUTOMATION AND TELEMECHANICS. 254 ILLUSTRATIONS, 61 TABLES.

UNCLASSIFIED

USSR

UDC 656.25.001(047)

BRYLEYEV, A. M., BOSIN, M. I., PEREBOROV, A. S., SMIRNOVA, A. V.,
EYLER, A. A.

"Theoretical Principles of Railroad Automation and Telemechanics.
Second Edition, Revised and Supplemented. Textbook for Students of
Railroad Transport Institutes"

Teoreticheskiye Osnovy Zheleznodorozhnoy Avtomatiki i Telemekhaniki
(English version above) (from Referativnyy Zhurnal Avtomatika, Tele-
mekhanika i Vychislitel'naya Tekhnika, No 2, 1970, Abstract No 2A652K
by I. Sh.)

Translation: This textbook consists of 23 chapters. 1. General
characteristics, indicators and requirements placed on automation,
telemechanics, and communications elements. 2. Transducers. 3.
Types of relays and their actuating parts. 4. Electromagnetic DC
relays. 5. Transient processes in electro-magnetic relays. 6. Polar-
ized relays. 7. AC relays. 8. Magnetic elements. 9. Logical
contactless elements. 10. Boolean algebra. Synthesis of combination
automata. 11. Synthesis of finite automata. 12. Principles of
selection. 13. Principal units of telemechanical systems. 14. Pro-
blems of interference stability in remote control and remote signalling

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USSR

BRYLEYEV, A. M., et al., Teoreticheskiye Osnovy Zheleznodorozhnoy Avtomatiki I Telemekhaniki (from Referativnyy Zhurnal Avtomatika, Telemekhanika I Vychislitel'naya Tekhnika, No 2, 1970, Abstract No 2A652K by I. Sh.)

systems. 15. Telemetry. 16. Types of automation. 17. Principles of automatic control. 18. Static characteristics of linear elements and systems. 19. Dynamics of linear automatic control systems. 20. Equations of components and automatic control systems. 21. Stability. 22. Synchronous communications systems. 23. Reliability of elements and systems of railroad automation and telemechanics. 254 illustrations, 61 tables.

USSR

UDC 577.4

MIKONI, S. V., and PEREBOROV, S. I.

"Algorithm for Constructing Tests for a Class of Many-Valued Lattices"

Izv. Leningr. elektrotekh. in-ta (Bulletin of Leningrad Electrical Engineering Institute), 1972, vyp 118, part 1, pp 146-149 (from RZh-Matematika, No 3, Mar 73, Abstract No 3V445 by KH. MADATYAN)

Translation: The article suggests a method for the construction of check and diagnostic tests for combinational circuits which realize many-valued logic functions in a basis containing the functions max, min, and all one-place functions. It is assumed that single stable faults occur in the circuit. An algorithm is given for the construction of tests for circuits without the branching of variables. As is noted by the authors, the algorithm which is set forth is designed for machine implementation.

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USSR

MIKONI, S. V., PEREBOROV, S. I.

"Algorithm for Construction of Tests for One Class of Multivalued Structures"

Izv. Leningr. Elektrotekhn. In-ta. [Works of Leningrad Institute of Electric Engineering], 1972, No 118, Part 1, pp 146-149 (Translated from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract No 3 V445 by Kh. Madatyan).

Translation: A method is suggested for construction of checking and diagnostic tests for combination circuits realizing functions in multivalued logic in a base containing the functions max, min and all single-value functions. It is assumed that individual stable defects arise in the circuit. An algorithm is presented for construction of tests for systems without branching of variables. As the authors note, the algorithm presented is designed for machine realization.

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USSR

UDC 666.97.033.17:666.972.16:666.972.152.002.237

PEREDEREYEVA, E.K., Engineer, GLADKOV, V.S., Candidate of Technical Sciences
IVANOV, F.M., Doctor of Technical Sciences, MAZOV, G.I., Engineer

"Highly Frost-Resistant Centrifuged Concrete With Air-Entraining Additives"

Moscow, Gidrotekhnicheskoye Stroil'stvo, No 3, 1972, pp 37-39

Abstract: Presented in the article are the procedure and results of tests for frost-resistance, conducted on full-scale elements and on samples of various types of concrete with air-entraining and complex additives. It is noted that the air entrained into the concrete mixtures during centrifuging is not removed. It is shown that the introduction of air-entraining and complex additives into centrifuged concrete considerably increases its frost resistance. The greatest frost resistance is noted for shells made of a concrete mixture with an air-entraining additive consisting of neutralized air-entraining resin (2300 freezing and thawing cycles). Centrifuged shell piles with complex additives to provide high frost resistance, are now being produced. 3 figures, 4 tables. 11 bibliographic entries.

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USSR

PEREDERNIN, L. V., KHRAPOV, A. YA., and SELYANIN, I. F., Siberian Metallurgical Institute

"Investigation of the Properties of a Graphitized Steel"

Novokuznetsk, IVUZ- Chernaya Metallurgiya, No 6, 1971, pp 151-154

Abstract: The properties of graphitized Fe-C alloys depend on the structure of the metallic matrix and the graphite phase. Modification has a considerable effect on the phase parameters and changes both the mechanical and casting properties. A steel (0.9-1.7% C, 0.9-2.3% Si, 0.3-0.6% Mn, 0.043% P (max), 0.04% S (max), and 0.03% Cr (max)) was melted in an induction furnace with an acid lining, heated to 1590-1620°C, and upon tapping treated with 75% ferrosilicon (up to 5%), silicocalcium grade $KaSiO$ (0.3% max), silicocalcium with magnesium grade FTSM-5 (0.4% max), ferrosilicocalcium+magnesium grade FSKM (1.2% max) and aluminum (0.15% max) as well as with the above-mentioned alloys in combination with aluminum and ferrosilicon.

The complex modification of graphitized steel with alloys having globularizing (Mg, Ce, Ca) and graphitizing (Si, Al) elements makes it possible to shorten the heat treatment time and increase both the mechanical

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USSR

PEREDENERNIN, L. V., et al., IVUZ-Chernaya Metallurgiya, No 6, 1971,
pp 151-154

and casting properties. The investigated steel had the best properties
when modified with alloys FSKM (0.6% min) or FTsM-5 (2% min) + 0.3% Si75
and heated by normalizing at 980°C and annealed at 760°C. Four figures, one
table, five bibliographic references.

2/2

1/2 016 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--PRODUCTION OF COMPACT GRAPHITE IN GRAPHITIZED STEEL WITH GRANULAR
PEARLITE -U-
AUTHOR--(03)-PEREDERNIN, L.V., SEL'YANIN, I.F., KHRAPOV, A.YA.
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(2), 129-33
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--GRAPHITIC STEEL, GRAPHITIZATION, METAL MELTING
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PROCESSING DATE--23OCT70

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE OPTIMUM CHEM. COMPN. AND HEAT TREATMENT CONDITONS WERE WORKED OUT TO OBTAIN THE STRUCTURE OF GRANULAR PEARLITE WITH FINE, COMPACT, AND UNIFORMLY DISTRIBUTED GRAPHITE INCLUSIONS. SEVEN MELTINGS OF STEEL WERE MADE (C (SUBTOTAL) 0.85-1.41, C (SUBGRAPHITE) 0.28-1.07, SI 1.01-2.47, MN 0.45-0.51, P 0.027-0.045, AND S 0.012-0.028 WT. PERCENT). SPECIMENS WERE CAST INTO GREEN SAND CLAY MOLDS. THE OPTIMUM HEAT TREATMENT CONDITIONS WERE HEATING TO 1000DEGREES IN 2 AND ONE HALF HR, NORMALIZING FOR 1 AND ONE HALF HR AT 950-1050DEGREES, COOLING TO ROOM TEMP., AND ANNEALING FOR 2 AND ONE HALF HR AT 750-80DEGREES. A CONTENT OF SI LARGER THAN 1.5PERCENT DID NOT GIVE PEARLITE IN THE STRUCTURE, WHILE IN ORDER TO OBTAIN GRANULAR PEARLITE, THE SIC, AND MN SHOULD BE WITHIN THE LIMITS 0.9-1.5PERCENT, 1.0-1.5, AND 0.45-0.65PERCENT RESP. AT C CONCNS. LARGER THAN 1.5PERCENT, THE GRAPHITE INCLUSIONS LOST THEIR COMPACT FORM.

FACILITY: SIB. MET. INST., NOVOKUZNETSK, USSR.

UNCLASSIFIED

Graphite

USSR

UDC: 669.111

PEREDERNIN, L. V., SEL'YANIN, I. F., and KHRAPOV, A. YE.

"The Problem of Producing Compact Graphite in Graphitized Steel with Grainy Pearlite"

Izv. VUZ, Chernaya Metallurgiya, No 2, 1970, pp 129-133

Abstract: Charges of rail steel were smelted in a 60-kg induction furnace in an attempt to produce graphitized steel with a structure consisting of grainy pearlite with fine, compact, evenly distributed graphite inclusions. This structure was produced with contents of 1.0-1.5% C, 0.9-1.5% Si, and 0.45-0.65% Mn with a heat-treatment mode consisting of heating to 1000° over two and one-half hours, holding at 1000° for one and one-half hours, cooling to room temperature over one-half hour, annealing at 770°C for three hours, and gradual cooling to 400° followed by quenching to room temperature. Higher contents of silicon do not facilitate the formation of the pearlite structure (the more silicon, the more ferrite was present). Increasing the carbon content results in a more compact form of the separated graphite. The influence of silicon on the rate of graphite sinter growth results from its action on the energetic position of the conductivity electrons in the lattice of the γ (α)-iron, in which this element is dissolved.

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USSR

UDC: 621.384.639

ABROSIMOV, N. K., ALKHAZOV, D. G., DMITRIYEV, S. P., YELISEYEV, V. A.,
KAMINKER, D. M., KULIKOV, A. V., MIRONOV, Yu. T., MIKHEYEV, G. F.,
RYABOV, G. A., CHERNOV, N. N., SHALMANOV, V. I., KOMAR, Ye. G., MALY-
SHEV, I. F., MONOSZON, I. A., PEREGUD, V. I., ROZHDESTVENSKIY, B. V.,
ROYFE, I. M., SEREDENKO, Ye. V., Physicotechnical Institute imeni A. F.
Ioffe, Academy of Sciences of the USSR, Leningrad, Scientific Research
Institute of Electrophysical Equipment imeni D. V. Yefremov, Leningrad

"The Leningrad Synchrocyclotron for a Proton Energy of 1 GeV"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol 41, No 9, Sep 71, pp 1769-1775

Abstract: The paper describes the synchrocyclotron at the Physicotechnical
Institute imeni A. F. Ioffe of the Academy of Sciences of the USSR for a
proton energy of 1 GeV. Proton beam parameters as well as the characteristics
of the main systems of the accelerator are presented. The beam channels are
described, and the layout of the accelerator building is given. The installa-
tion has been in successful operation since 1970. Three tables, two figures,
bibliography of twelve titles.

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Analytical Chemistry

USSR

UDC 543:615.9

PEREGUD, Ye. A. and GERNET, Ye. V.

Khimicheskiy Analiz Vozdukha Promyshlennyykh Predpriyatiy (Chemical Analysis of the Air of Industrial Enterprises), Issue No 2, Corrected and Supplements, Leningrad, "Khimiya," 1970, pp 2, 3-8, 9-12, 13-15

Translation:

Annotation: Methods of sanitary-chemical analysis of the air in industrial enterprises are described in the book; particular attention is given to the identification of toxic substances for which maximum allowable concentrations in the air of industrial premises have been established.

The second issue has been supplemented with methods for the determination of the maximum allowable concentrations (PDK) of new chemicals being introduced in industry. A number of methods described in issue one have been replaced by more rational and improved methods making possible the completion of the analysis faster, with a smaller volume of air, and with greater precision.

The book is intended for chemists working in analytical laboratories of industrial enterprises, sanitary-epidemiological stations, and scientific-research institutes. Illustrations: 24. Tables: 233

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USSR

PEREGUD, Ye. A. and GERNET, Ye. V., Khimiya, 1970, pp 2, 3-8, 9-12, 13-15

Preface: Problems concerning the prevention of occupational intoxications and diseases are given a great deal of attention in Soviet sanitary legislation. The prophylaxis of occupational intoxications has become during the past few years one of the elements in the planning of new technological processes and industrial enterprises.

Not only do the organs of sanitary supervision exercise control in the course of the enterprise planning process, but also in the course of the practical implementation of the projects. These activities are being accomplished on a base of sanitary rules which stipulate the requirements with relation to the construction and maintenance of industrial enterprises of the different branches of industry and also working conditions when working with various toxic substances.

One of the basic directions of the struggle against acute as well as chronic occupational diseases is the hygienic standardization of the industrial environmental air, that is the establishment of maximum allowable quantities of toxic substances in the air of working premises.

Understood under the concept of maximum allowable concentrations (PDK) are such concentrations of different toxic chemical substances found in the

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- 2 -